

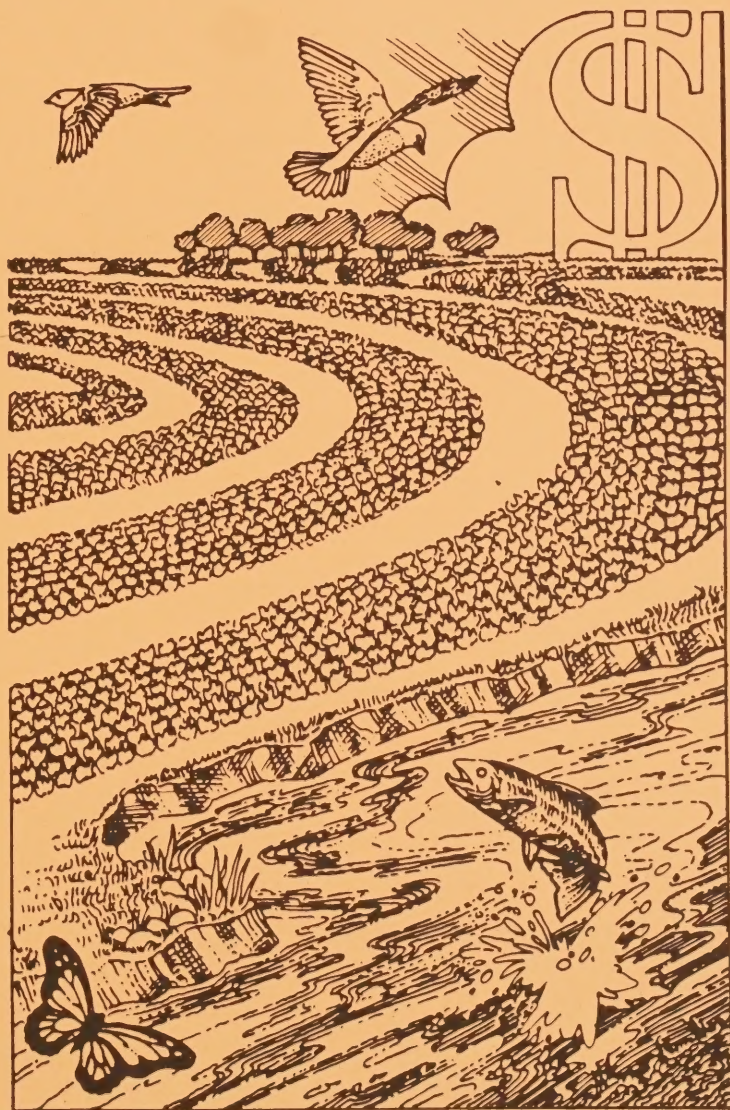
Historic, Archive Document

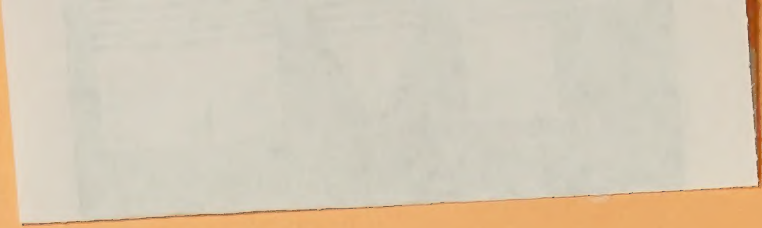
Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
aS451
.M7M57
1991

MISSISSIPPI

Southern Region Projects Supported by Sustainable Agriculture Research and Education Program





Administered by

Cooperative State Research Service, USDA
in cooperation with Extension Service, USDA
Pursuant to Title XVI, Research, Subtitle B of the
Food, Agriculture, Conservation, and Trade Act of 1990
(PL 101-624)

Edited by

William H. Brown
Louisiana State University

and

J. Patrick Madden
University of California

from project reports

June 1991

Overview of Mississippi Projects

Congress has provided strong and growing support for the Sustainable Agriculture Research and Education grants program, also known as LISA (Low-Input Sustainable Agriculture). Administered by Cooperative State Research Service (CSRS), with the Cooperative Extension Service as a full partner, this program is forging partnerships between farmers, scientists, educators, agribusiness, non-profit organizations, and government -- a partnership that is beginning to promote better stewardship of the Nation's natural resource base. The program has supported 112 new projects since its inception in 1988; perhaps two dozen more will be funded by June.

Projects funded are typically carried out by teams of farmers, university research and education staff, government agencies, non-profit organizations, and private enterprise. Top priority is given to whole-farm integrated systems projects, usually including on-farm research and demonstrations. These projects are providing scientific documentation of low-input sustainable farming practices and systems, in comparison with conventional or chemical-intensive agriculture.

Farmer involvement is one of the strengths of this program -- 1,860 farmers nationwide have participated in projects during the first three years. When farmers participate in the planning and execution of a project, two important things happen. Concerns of farmers are foremost in the design of the project. And scientists get directly exposed to innovative ideas developed or tried by farmers. These ideas often become an integral part of scientific studies. The result is both better science and a more widespread adoption of more sustainable farming methods that are economically viable, socially acceptable, and environmentally sound, assuring cleaner water and a plentiful supply of safe food for generations to come.

The coordinators of Mississippi projects were asked about participating farmers. Here is what they reported:

- A total of 11 Mississippi farmers have participated in LISA research and education projects;
- 4 are reported to have helped generate ideas for these projects, and 11 help manage the projects;
- 2 farmers have provided land for replicated experiments; another 5 provided land for unreplicated studies, and 6 for demonstration plots;
- 11 are helping with the evaluation of projects.

U.S.D.A., NAL
SEP 17 2002
Cataloging Prep

Projects Funded 1988-1991

Three projects funded by this program that include Mississippi scientists, farmers, or educators in major roles are described here. These projects received a total of \$129,750, and provided \$257,963 matching funds. In most of the projects, a scientist serves as the Project Coordinator. In others, a farmer or other local area residents are contributing to a multi-state project headquartered in another state.

Enhancing Farmer Adoption and Refining of A Low-Input InterCropping Soybean-Wheat System (LS89-12)

Summary

Research and Extension personnel at Mississippi State University have developed a low-input soybean-wheat intercropping system which involves mechanically planting soybeans between standing rows of wheat spaced 15-16 inches apart at the time the wheat grain is in the medium-soft dough stage. The year 1988 was the sixth year of research and development work on this system for planting soybeans into wheat using an established tractor wheel track skip (30-inch skips 2/20 ft. planter swath). The system reduces soil erosion potential, tillage and herbicide input costs, increases soybean yield and results in higher net returns than conventional monocrop soybeans and other soybean-wheat double-cropping systems. The system has practical application to small and medium size farms through improved net returns on the same land area without increasing acreage farmed.

This project involves two USDA agencies (Agricultural Research Service, and Soil Conservation Service), plus farmers, Extension and Research personnel in Mississippi, and Arkansas. The purpose is to enhance the adoption of this low-input intercropping system and to participate in further refinement of this system for small to medium size farms in these two states. Information on this technology will be presented through field days, video production, and published bulletins. It will be made available to farmers and Extension personnel in Mississippi, Arkansas and other states desiring to develop similar intercropping systems.

Project Coordinator: Normie W. Buehring, Mississippi State University

Major Participants: Mississippi State University: A. Blaine, S. Spurlock;
Crittenden County: S. Rodery; Prairie County: H. Chaney

Farmers: Crittenden County: B. Weaver; Prairie County: R. Greenwalt

Project Duration: 28 Months starting March 1, 1989

Total Funding: LISA Funds: \$120,000; Matching Funds: \$244,883

Reference Manual of LISA Resource Management Strategy Budgets for the Mid-South Region (LS91-33[51])

Summary

Conventional agriculture requires specialized, capital intensive systems that are dependent upon high levels of purchased inputs. Excessive use of many of these inputs can have detrimental effects upon the environment, and enhance consumer alarm regarding food safety issues, while reducing returns to farmers and increasing their financial and health risk levels. Environmental and food safety improvements can be made, and farmers can gain financially from reduced cost levels associated with the incorporation of proven low-input farming methods.

The objective of this LISA proposal is to develop Resource Management Strategy (RMS) budgets for selected agricultural enterprises and systems located in the mid-south region. The budgets would provide sound economic information on LISA management practices to farmers, Extension personnel, ASCS and SCS offices and other interested individuals and organizations.

Project Coordinator: Larry A. Johnson, Agricultural Economics & Resource Development Agricultural Extension Service, University of Tennessee

Major Participants: Agricultural Economics & Resource Development Agricultural Extension Service, University of Tennessee: Clark D. Garland.

University Representatives: Auburn university, University of Georgia, Mississippi State University.

Farmer Participants: Tennessee, Georgia, Alabama, and Mississippi.

Participating Extension Agents: Tennessee, Georgia, Alabama, and Mississippi.

Project Duration: Two years

Total Funding: LISA Funds: \$50,000; Matching Funds: \$50,000

Uniform Spray Deposits For Reduced Pesticide Use in Weed and Insect Control Operations (LS91-41[43])

Summary

Today's pesticide doses (or rate) recommendations for row crops are nearly always in excess of the doses which have been shown to be effective when applied properly. The recommendations reflect a "measure of insurance" against inaccurate sprayer calibration, adverse weather, and poor deposit uniformity obtained with the majority of the spray application equipment in current use. Past research has addressed a wide variety of factors involved in erratic pest control, including environment and populations of pests and their natural enemies. However, little research has been conducted to evaluate potential influences of pesticide deposit variation on pest control; therefore, the proposed research addresses this question.

An electronically-controlled field sprayer will be used to create three levels of variation among deposits on common cocklebur and cotton canopies. High Performance Liquid Chromatography (HPLC) and Gas Chromatography (GC) equipment will be used to quantify the magnitudes of herbicide and insecticide deposits on common cocklebur and cotton, respectively. Deposit variation data will then be compared with actual weed and insect control data to determine the effects of deposit variation on pest control. Results from the first year's research will also be used in the second year at the farm level to demonstrate the impact of pesticide deposit variation on weed and insect control, and the potential for economic and environmental benefits through reductions in pesticide application rates. These levels of variation will be used to two or more pesticide rates in order to demonstrate the potential rate reductions possible through more uniform pesticide applications.

Objectives

- (1) Improve weed control and reduce environmental pesticide impact by reducing the variation of on-target herbicide deposits.
- (2) Improve cotton insect control and reduce environmental pesticide impact by determining the effect of insecticide deposit variation on insect control.

Project Coordinator: David R. Shaw, Weed Science, P.O. Drawer PG, Mississippi State University, Mississippi State, MS 39762. Telephone: 601-325-2598.

Major Participants: David B. Smith, Agricultural Engineer; Randall G. Luttrell, Entomologist.

Project Duration: One year

Total Funding: LISA Funds: \$43,500.00; Matching Funds: \$46,830.00.

NATIONAL AGRICULTURAL LIBRARY



1022587937

* NATIONAL AGRICULTURAL LIBRARY



1022587937